

Mitsubishi Video Server Box

DX-VS1

User's Manual

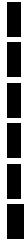


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I. Introduction

1. Product Introduction

1) What is DX-VS1UE?

Video server box DX-VS1UE offers the solution of the network type remote surveillance server having many features, such as an internet server, a image compression device, and serial device control. You can operate Mitsubishi digital recorder DX-TL800E or several pan/tilt/zoom cameras through DX-VS1UE remotely.

DX-VS1UE utilizes Wavelet image compression and Linux operating system. Wavelet and Linux enable DX-VS1UE to transfer high quality images faster and with a greater degree of reliability.

2) Features

- **Ease of Use** - DX-VS1UE requires Microsoft Internet Explorer 5.0 (or later) for use. Connect DX-VS1UE to the Internet and it is ready for use.
- **Wavelet Image Format** - Since DX-VS1UE has adopted the WAVELET compression system which can compress a picture at the high rate of compression, without spoiling quality of image, DX-VS1UE makes it possible to monitor image at maximum 30 frames per second.
(The number of frames of a monitoring image receives influence from state and bandwidth of network or the performance of client PC)
- **Maximum 720x486 Picture resolution** - Monitoring image resolution can be chosen from 720x486, 720x243, 360x243, 180x121(x2) and 90x60(x4).
- **MultiClient** - DX-VS1UE can be monitored from arbitrary PC linked to the network. The number of users which can monitor simultaneously is 100 users maximum.
- **External Device Connection** - External devices such as IR-sensor, digital recorder or pan/tilt/zoom camera can be connected to DX-VS1UE
- **Access restrictions using password** - Password can be set at each levels(Simple Viewer Level, DVR Configuration Level, DVR/PTZ Control Level, Server Configuration Level) and unauthorized access can be rejected.
- **Simple Administration** - DX-VS1UE can be configured and managed directly from its own web page.

- **Notification function under unusual condition**- The function makes it possible to transmit image taken when something unusual occurs through e-mail or FTP.
- **FireWall compatible** - Even if DX-VS1UE is connected into the network protected by fire wall, by the server push function, it is possible to monitor image from outside of the firewall using server-push mode. (The number of simultaneous monitoring may be restricted.)

2. System Requirement

For DX-VS1UE

- Network: 10 Base-T LAN (Leased line, xDSL)

For PC to access DX-VS1UE

- Processor: Intel Pentium series or Intel Celeron series, and the IBM PC/AT compatible machine with CPU of 400 or more Mhzes.
- OS: Windows 98SE/ME/NT4.0 WS SP6/2000/XP SP1
- RAM: 128MB and More
- Video board and monitor which can display image at 1024x768 pixel or higher and more than 32768 colors.
- Web Browser: MS Internet Explorer 5.0 or later.
- NIC(Network Interface Card) which works normally on the above-mentioned environment.

Notice

- All devices which meets the above mentioned conditions shall not be guaranteed to be available for using DX-VS1UE normally.

11. Product Description

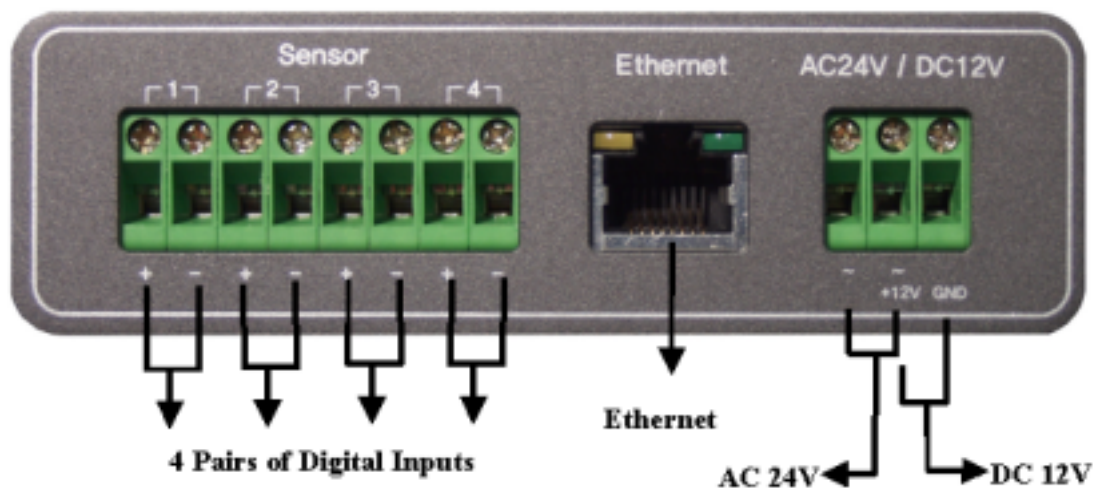
1. Confirmation of the Accessories

Check that all the supplied accessories listed below are included.

| item | description | amount | remarks |
|----------------------|---|--------|---------|
| DX-VS1UE | Video Server Box | 1 | |
| Manual | DX-VS1UE Setup Guide | 1 | |
| Crossover LAN cable | Crossover cable(Length:1m) | 1 | Red |
| Straight LAN cable | Straight cable(Length:2m) | 1 | White |
| RS-232C serial cable | RS-232C serial cable(Length:1m) for connecting a digital recorder with DX-VS1UE | 1 | |
| Plastic Anchor | Anchors for fixing DX-VS1UE | 4 | |
| Tapping Screw | Screws for fixing DX-VS1UE | 4 | |
| CD-ROM | Setup Program and User's manual | 1 | |
| AC Adapter | DC (direct current) 12V, MAX:1.5A | 1 | |
| Power Code | AC (alternate current) 220V | 1 | |

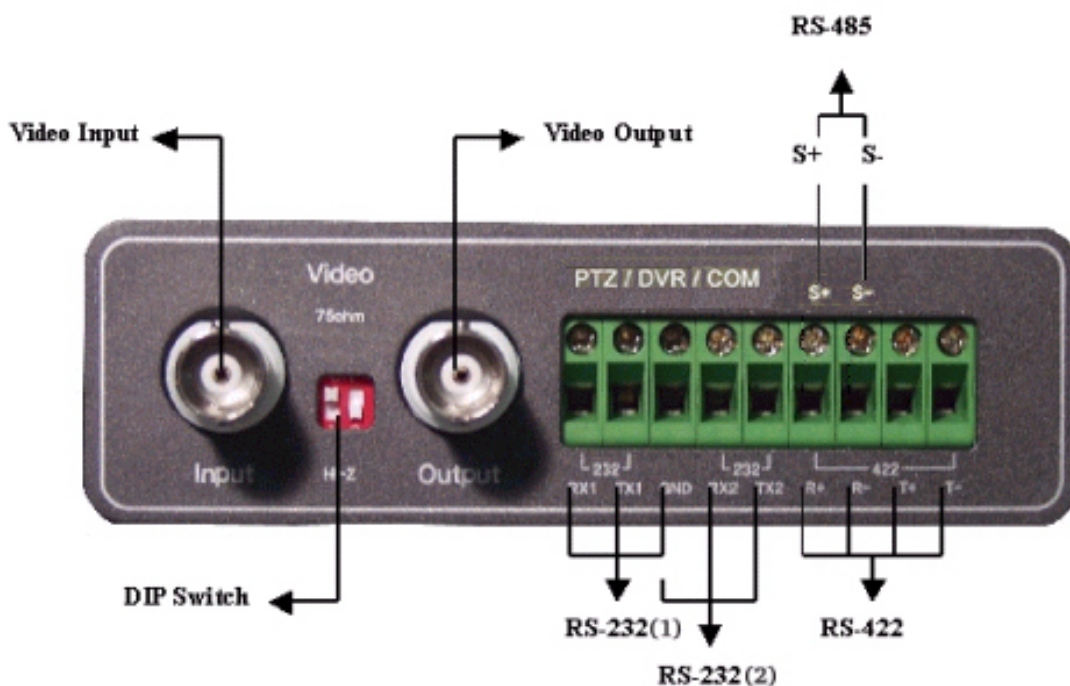
2. DX-VS1UE View and Description

1) Front View and Description



| connector | description | remarks |
|-----------|---|-------------|
| Sensor | 4 pairs of connectors for sensor signal input | |
| Ethernet | Connector for connecting 10BASE-T ethernet cable | Refer to 3) |
| AC 24V | Connector for connecting AC(alternate current)24V power supply unit | |
| DC 12V | Connector for connecting DC(direct current)12V power supply unit | |

2) Rear View and Description



| connector name | description | remarks |
|-------------------------|---|--------------------------------|
| Video Input | Connector for inputting video signal using BNC cable | |
| DIP Switch | Switch for designating terminal of video signal of video input BNC connector(Only left swith is used) | Refer to 4) |
| Video Output | Connector For outputting video signal using BNC cable | |
| PTZ/DVR/COM (RS-232(1)) | Connector for connecting DX-VS1UE with digital recorder in order to operate digital recorder. This consists of RX1,TX1 and GND. | GND terminal is used in common |
| PTZ/DVR/COM (RS-232(2)) | Connector for connecting DX-VS1UE with pan/tilt/zoom cameras in order to operate digital recorder. This consists of RX2,TX2 and GND. | |
| PTZ/DVR/COM (RS-422) | Connector for communication between DX-VS1UE and pan/tilt/zoom cameras which support RS-422 protocol. This is half duplex and consits of R+,R-,T+ and T-. | |
| PTZ/DVR/COM (RS-485) | Connector for communication between DX-VS1UE and pan/tilt/zoom cameras which support RS-485 protocol. This consists of S+ and S-. | |

While you are using one of serial connectors among RS-232(2) , RS-422 and RS-485 connector, you can't use the other two connectors.

3) LEDs of Ethernet port

Yellow LED: This LED indicates the status of data transmission. After power is supplied, it is on for the first 4-5 seconds and then it goes off. And it blinks continuously when a user access DX-VS1UE and DX-VS1UE transmits data.

Green LED: This LED indicates the status of networking. After power is supplied, it is on for the first 1-2 seconds, and then it blinks once at every one second as long as the network is connected.



Diagnostic information on failure using LED

Problem on Network

- **Green LED blinks once every 4 seconds.**

Check that ethernet cable is connected properly and network has no problem.

Problem on Hardware

- **Neither Yellow LED nor Green LED light up at all.**

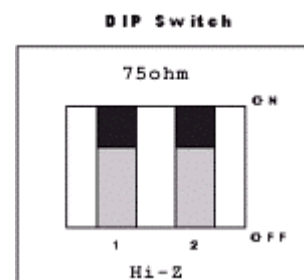
Since DX-VS1UE is in unstable operation, restart DX-VS1 by supplying power again.

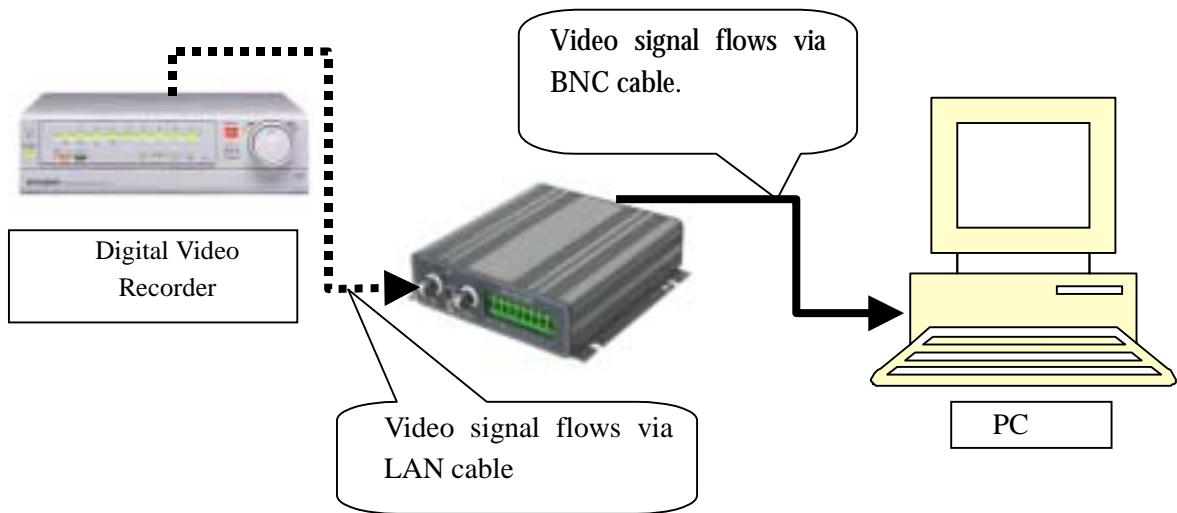
If DX-VS1UE would not restore regardless of restarting, stop using and contact with store.

4) Description of DIP Switches

This is used to designate video signal termination. If you want to monitor real time image through a CCTV monitor as well as DX-VS1UE, connect a digital recorder to 'Video Input' connector and a CCTV monitor to 'Video Output' connector. In this case, the terminal of video signal need setting properly.

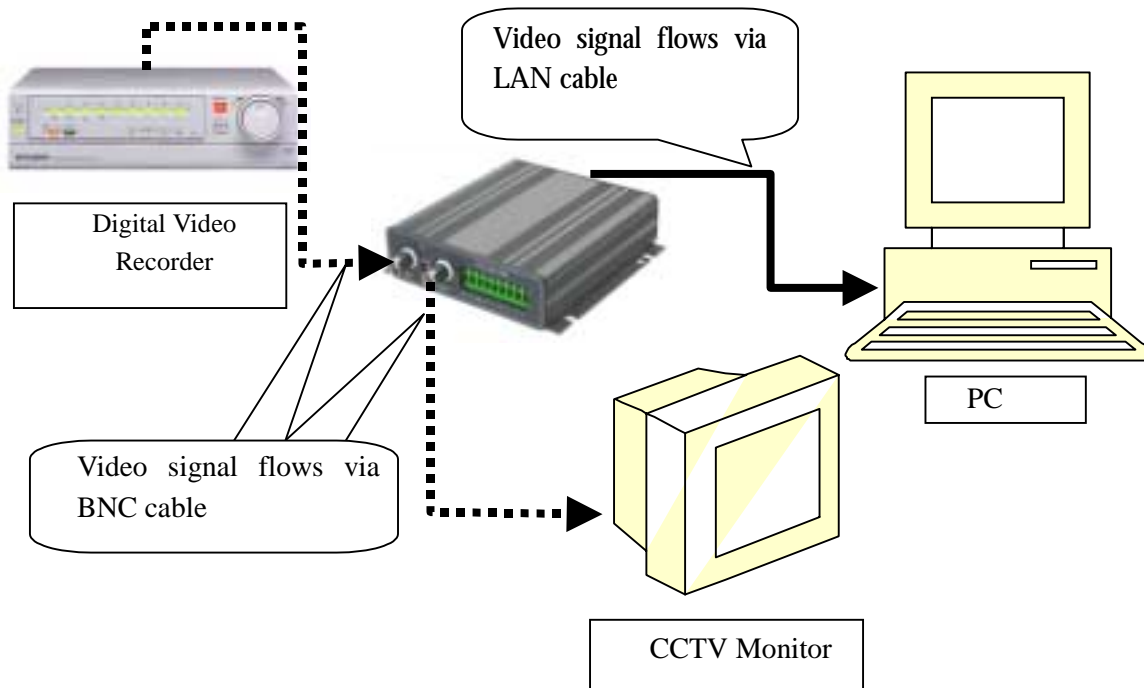
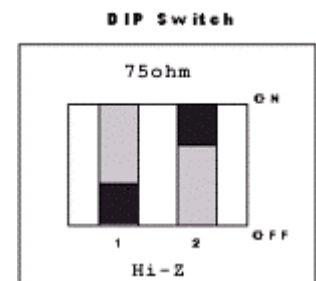
If you connect a digital recorder to 'Video Input' and monitor real time video only through a PC, place the left-hand side DIP switch at upper position 'ON' (the side of '75ohm').





2. If you monitor real time video through a CCTV monitor as well as a PC, connect a digital recorder to 'Video Input' and a CCTV monitor to 'Video Output.' And place the left-hand side DIP switch at lower position 'OFF' (the side of 'HI-Z'). CCTV monitor is set as termination of the video signal.

The right-hand side DIP switch is not available.



III. DX-VS1UE Initial Configuration

1. Installation Summary

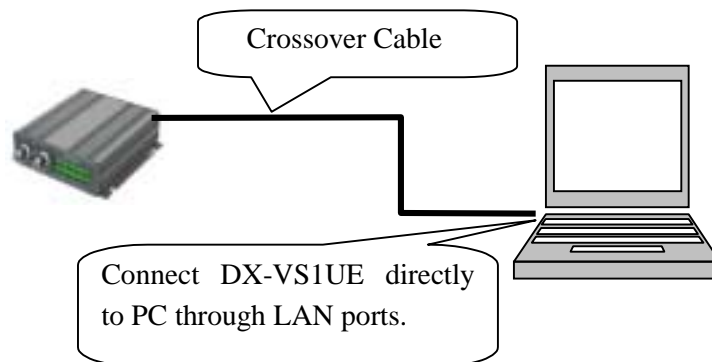
- Connect ethernet cable and supply power to DX-VS1UE on local network for configuration.
- Install a setup program of DX-VS1UE in a PC on local network.
- Assign an IP address to DX-VS1UE and set administrator condition.
- Set user condition.

2. Connecting

- Connect ethernet cable to the ethernet port on the rear.
- Connect power supply unit to a power supply port on the rear..
- Confirm that the LEDs of ethernet port keep blinking.

• **Connecting DX-VS1UE with PC**

You may use crossover cable (red colored one) to directly connect DX-VS1UE to a PC.



*If you use the crossover cable (red colored one) enclosed and follow the method illustrated in the above diagram, but you cannot access, try to connect through HUB using direct cable. Otherwise, set 10Mbps to the communication speed in terms of network interface configuration of your PC, if it's possible. In case you cannot access even though you tried the above mentioned method, something can be wrong with PC(including OS setting). Please contact with makers which provide your PC or OS.

Note in connecting cable to terminal block

When you connect cable to terminal block, you should peel off the cover of cable by 1.5cm and insert the cable by 2cm into the terminal block.(communication., sensor input, alarm and etc).

The white line on cover of power cable indicates "+".

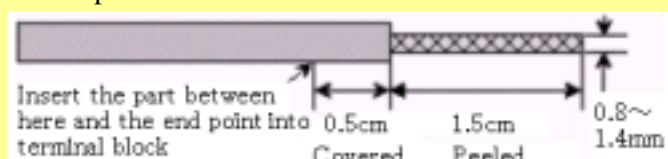
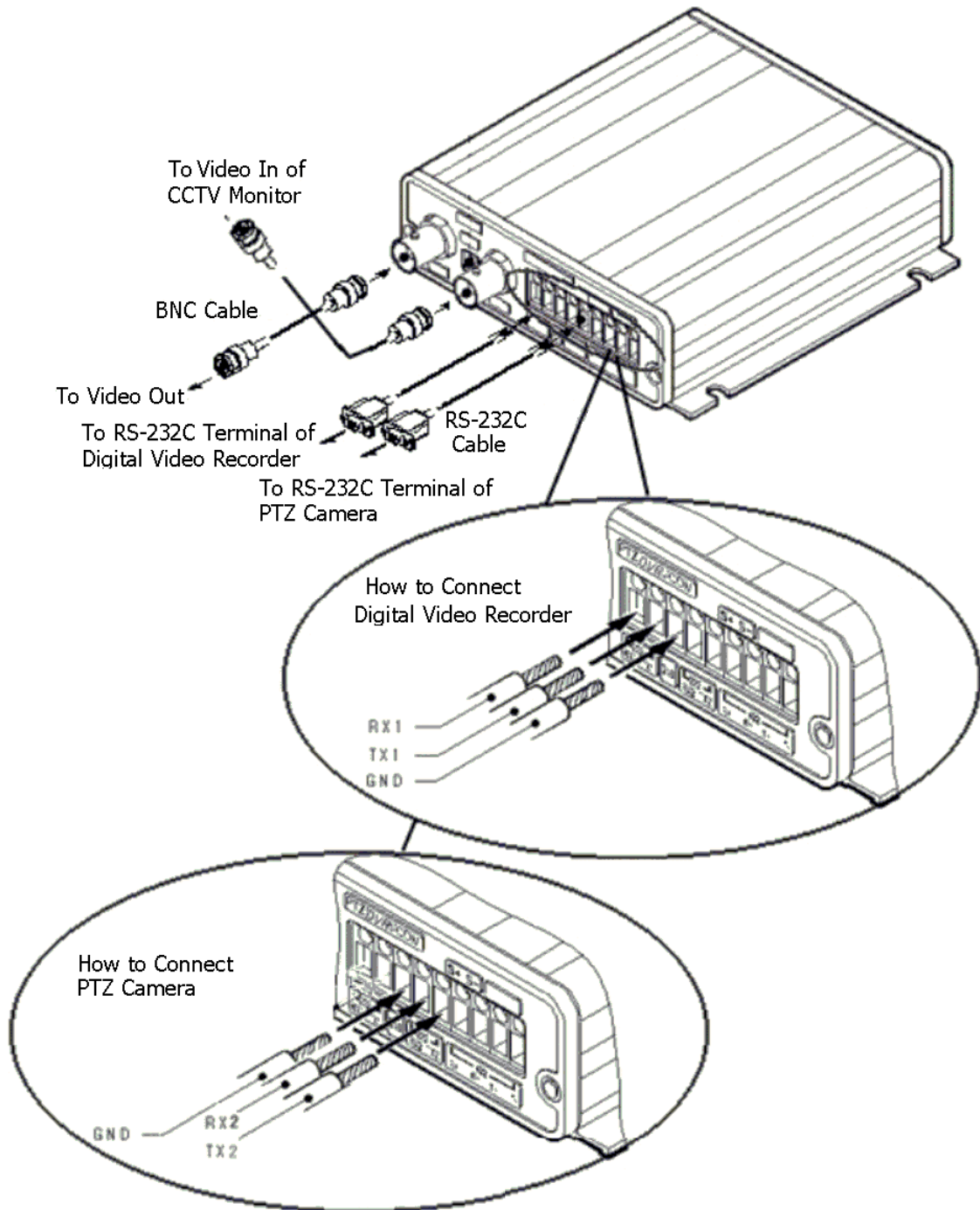
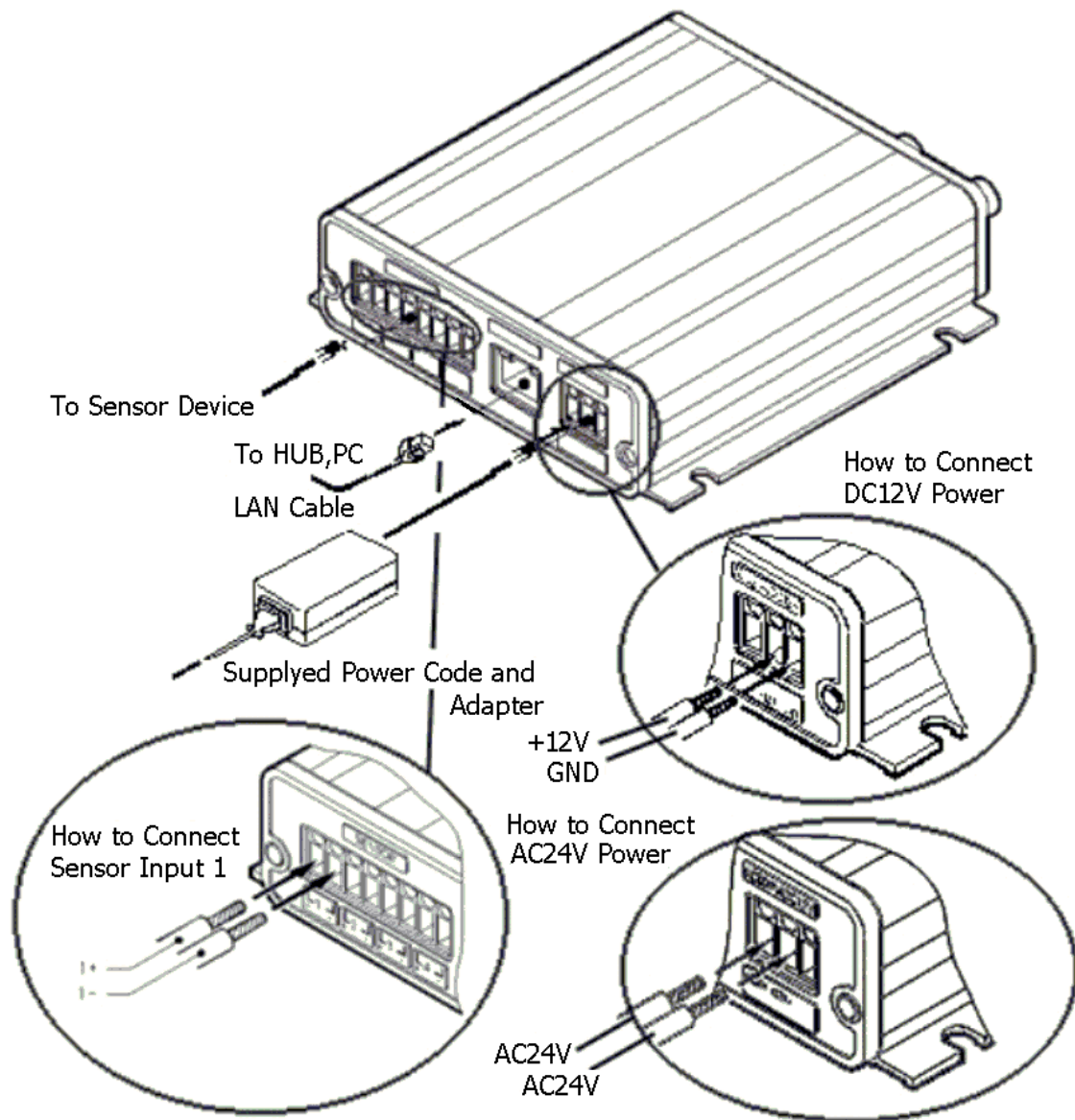


Illustration of the method of connection



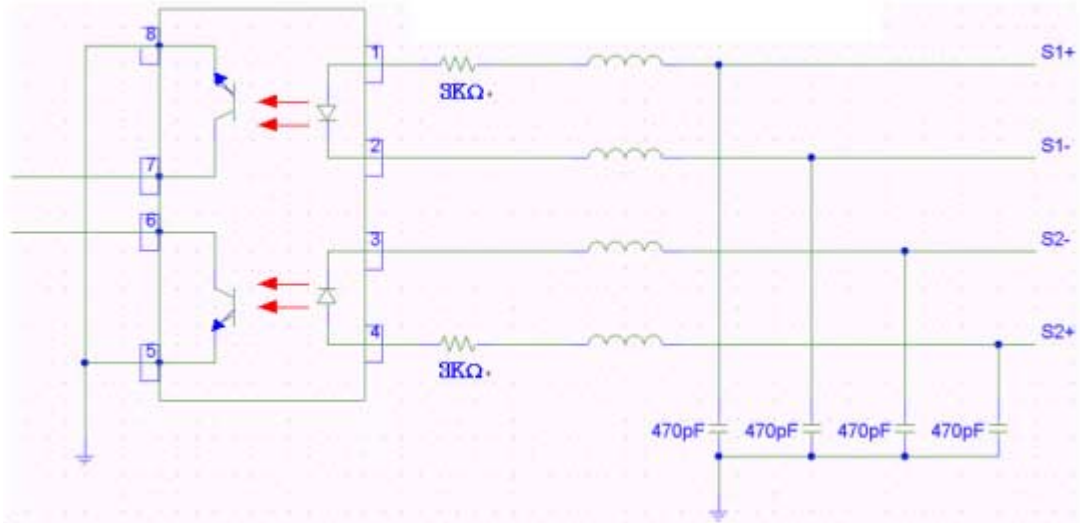
When you connect a cable to the terminal, fix the screw on the upper part of the terminal completely, after loosening the screw and inserting the cable. please be careful not to short-circuit adjacent cables. Also, please don't twist each cable when wiring.



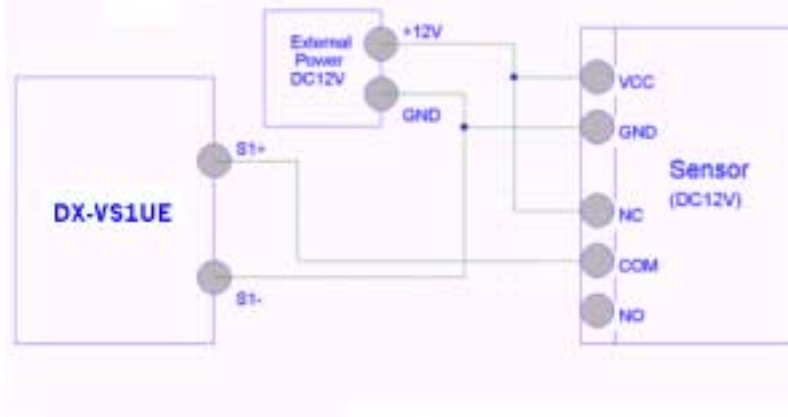
When you connect a cable to the terminal, fix the screw on the upper part of the terminal completely, after loosening the screw and inserting the cable. please be careful not to short-circuit adjacent cables. Also, please don't twist each cable when wiring.

- The circuit diagram of a sensor terminal.

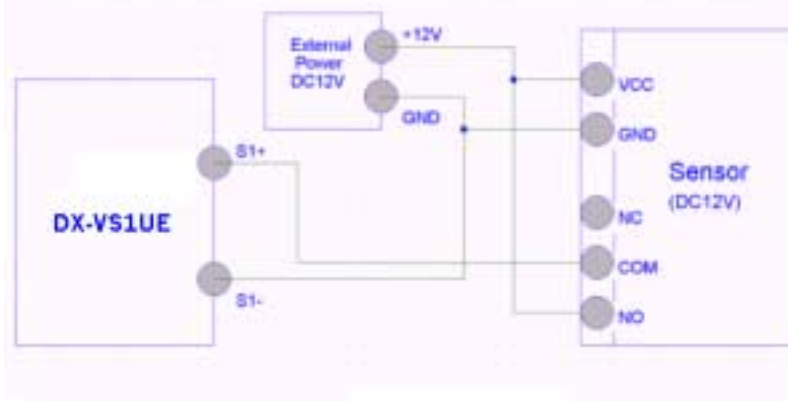
Inner circuit diagram of the sensor



The circuit diagram of connection of DX-VS1UE with NC-type sensor



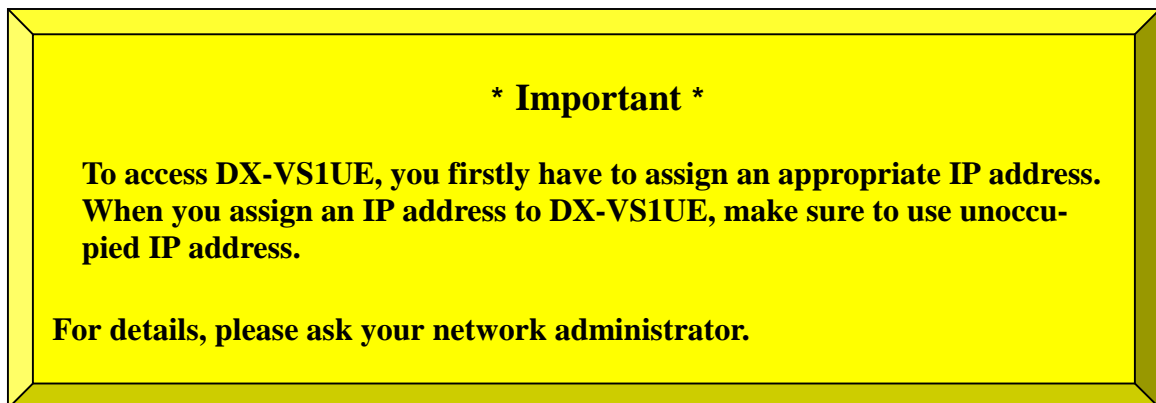
The circuit diagram of connection of DX-VS1UE with NO-type sensor



3. Installing DX-VS1UE Setup Program

- Copy DX-VS1Setup.exe file from the enclosed CD-ROM
- Click the file on your PC to run Setup program.

4. Assigning IP Address and setting Administrator Condition



• Starting the Setup Program for DX-VS1UE

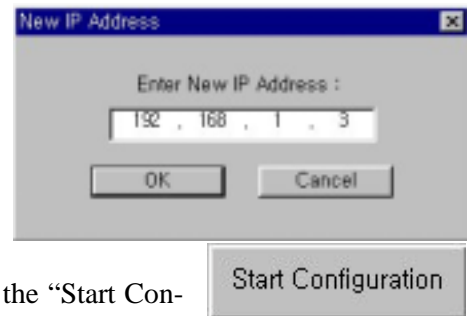
Run the “DX-VS1Setup.exe”. When the setup program is started, the setup program detects and shows all DX-VS1UEs connected with the local network.

From the DX-VS1UEs listed, select one to assign a new IP address. (Default value is 192.168.1.100) To select a DX-VS1UE, click on its MAC Address or IP address.

When a DX-VS1UE is selected, its IP address will appear in the “Selected IP Address” box. enter a password in the Admin’s Password box to change the IP address, reboot DX-VS1UE, or start configuration. The default password is ‘admin’.



To change the IP address, enter the Administrator's password and press "Change IP Addr.", enter the new IP address and press "OK." Button. The "Reboot" button will reboot the DX-VS1UE. This process takes 10-20 seconds.



▪ **Setting Administrator Conditions**

To access the Server Configuration Page in DX-VS1UE from the Setup Menu, enter the admin's password and press the "Start Configuration" button. (For more detailed information, refer to Chapter V "Server Configuration Page")

*** Terminology ***

IP Address

IP address is an identification code for computers and devices on a TCP/IP network. Networks using TCP/IP protocol routes based on the IP address of the destination. IP addresses can be assigned at random as long as each one is unique on closed network. However, connecting a private network to the Internet requires using registered IP addresses to avoid duplicates. IP address can be acquired from a network administrator or an Internet service provider.

MAC Address (Media Access Control Address)

MAC address is a hardware identification code that uniquely identifies each node of a network. The MAC layer directly interfaces with the network media. Consequently, each type of network media requires a unique MAC layer. The MAC address of DX-VS1UE is composed of 12-digit numbers. A unique MAC address can be found on the label at the bottom of each DX-VS1UE.

Crossover Cable

The crossover cable (red) provided with the DX-VS1UE is used to connect DX-VS1UE with a PC. A HUB is not necessary for connecting DX-VS1UE to a PC if a crossover cable is used.

Straight Cable

The straight cable (white) is used if a HUB is used as an intermediary between DX-VS1UE and PC.

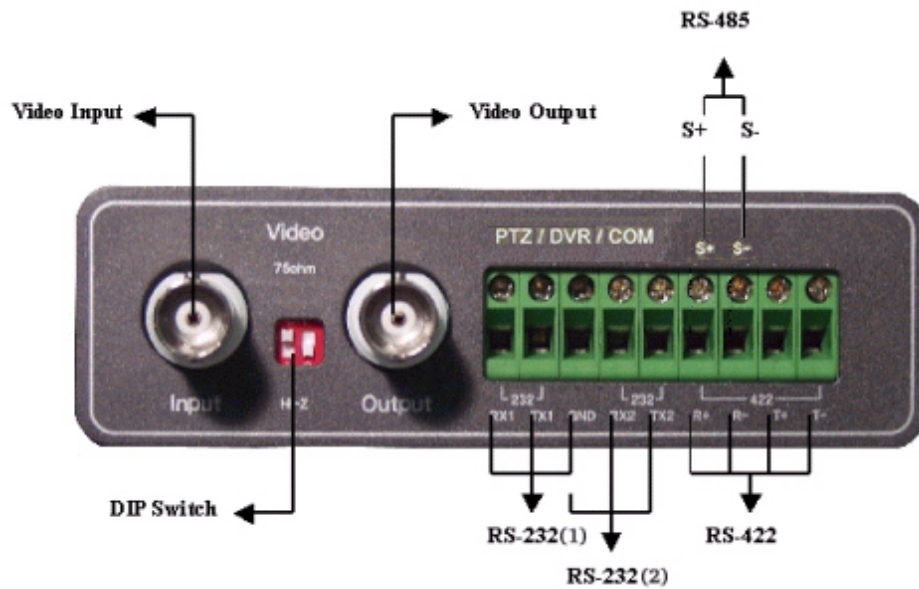
5. Connecting a digital recorder to DX-VS1UE

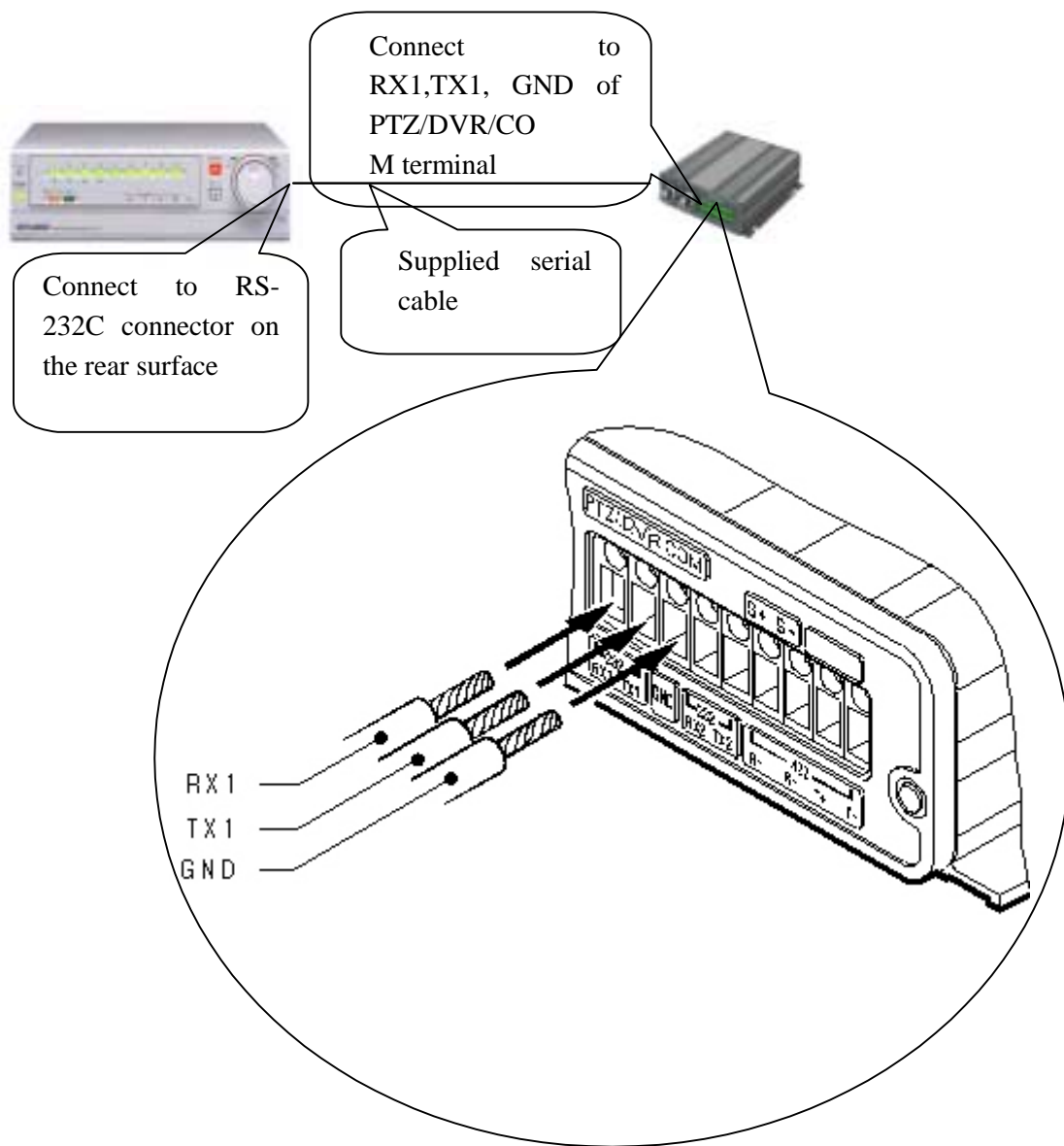
1) Connecting BNC cable

Connect one end of BNC cable with the video input connector of DX-VS1UE and the other end with one of video output connector on the rear surface of digital recorder. Use 75ohm(3C-2V type or more) type cable as BNC cable.

2) Connecting RS-232C cable

Connect RS-232C connector of a digital recorder to the RS-232(1) (refer to the following image) connector of DX-VS1UE using the attached serial cable for digital recorder connection. One end of the attached serial cable consists of three wires(red,yellow,black). Connect red wire to RX1, yellow one to TX1 and black one to GND terminal. For connecting, loosen each fixing screw , insert three wires into each terminal and fasten each fixing screw.





IV. Accessing DX-VS1UE Homepage & Monitoring Real-time Image

After assigning IP address and gateway address, subnet mask, broadcast address to DX-VS1UE properly, you may access DX-VS1UE and monitor real-time image on Internet.

1. Starting Web browser

Start your web browser and enter IP address assigned to DX-VS1UE. Then you can see the user login page of DX-VS1UE.

- Ex)

http://192.168.1.100/

DX-VS1UE supports up to 100 simultaneous access. But, the larger the number of simultaneous access user gets, the slower the monitoring rate of realtime image gets.

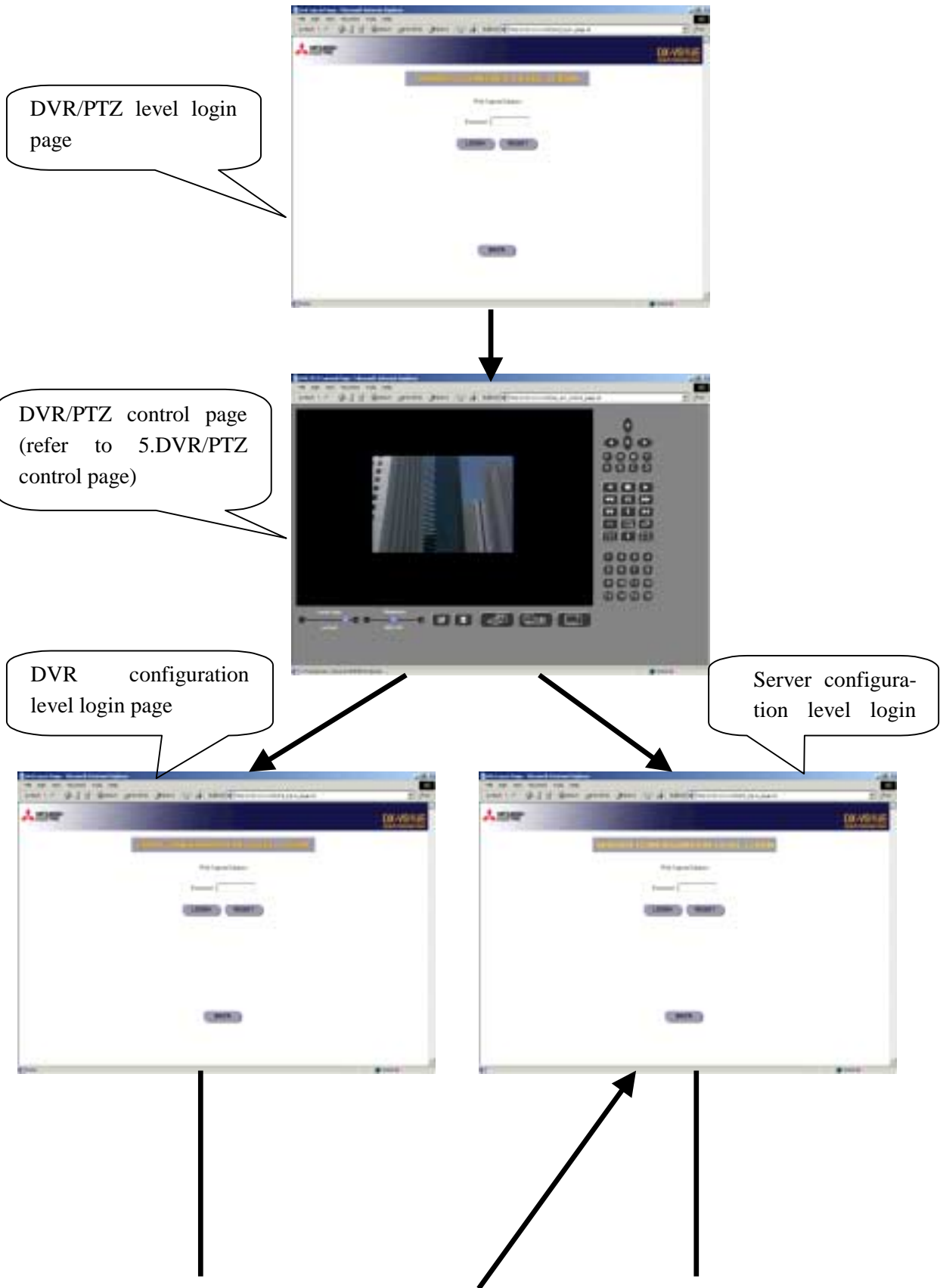
2. Composition of a screen

User Login Page (This page appears firstly when you access DX-VS1UE.)



Simple Viewer Page(refer to chapter IV "Accessing DX-VS1UE Homepage & Monitoring Real-time





6) Application Configuration

This page is used to set e-mail and file transmission function.

(1) Recipient E-mail Address

This is used to designate a person to receive E-mail.

(2) Sender's E-mail Address

This is used to put a person's e-mail address that is considered as the e-mail sender.

This menu plays an important role since this is used for avoiding the problem that e-mails are blocked by some mail servers. Some e-mail servers don't receive any e-mail that doesn't have valid domain name such as abc@abc defg.com. It is because there are a lot of junk e-mails. So, in some cases, DX-VS1UE and other devices which do not have valid domain names or have only IP address can't send e-mails. To avoid this problem, DX-VS1UE has the menu to put sender's e-mail address. The default value is invalid, so administrator should change the address with valid one. Administrator can put his/her e-mail address.

(1) Check E-Mail Options

Relay Mail Server: Against the same problem as e-mail blocking, DX-VS1UE has a function to relay its e-mail through an available e-mail server so that e-mail can have the relay server's domain name. After activating "Use Relay Mail Server" menu, you enter a server's domain name such as '@abcdefg.com'. Since the default value of the e-mail server is invalid, don't use the default value when you use the relay mail server function.

Content-Transfer-Type: This shows supported e-mail format. Only 'Base64' format is supported.

(2) E-Mail Event Configuration

Event source: Administrator should define in which event E-mail should be delivered among MD (motion detection), sensor 1, sensor 2, sensor3, and sensor 4. If administrator clicks on sensor 1, e-

| Parameter Name | Parameter Value |
|---------------------------|---|
| Recipient's Email Address | |
| Sender's Email Address | yours@your.org domain |
| Check Email Options | <input type="checkbox"/> Use Relay Mail Server: mail.org.domain Content-Transfer-Type: Base64 |
| Email Event Configuration | <input type="checkbox"/> Motion Detection <input type="checkbox"/> Sensor Input Detection for Input Port 1 <input type="checkbox"/> Sensor Input Detection for Input Port 2 <input type="checkbox"/> Sensor Input Detection for Input Port 3 <input type="checkbox"/> Sensor Input Detection for Input Port 4 <input type="checkbox"/> Periodic Sending per 60 minutes Naming Method for the attached image file <input checked="" type="checkbox"/> DATE&TIME suffix (EX:IMG-CH00-20020810-053236-404.EYE) <input type="checkbox"/> SEQUENCE NUMBER suffix (EX:IMG-CH00-SND.EYE) <input type="checkbox"/> Manually assigned file name Image File Name: IMAGE.EYE Select Image Resolution: 360x240 |
| FTP Server Address | |
| FTP User Account | |
| FTP User Password | |
| FTP User Path | / |
| FTP Event Configuration | <input type="checkbox"/> Motion Detection <input type="checkbox"/> Sensor Input Detection for Input Port 1 <input type="checkbox"/> Sensor Input Detection for Input Port 2 <input type="checkbox"/> Sensor Input Detection for Input Port 3 <input type="checkbox"/> Sensor Input Detection for Input Port 4 <input type="checkbox"/> Periodic Sending per 3600 seconds Naming Method for the attached image file <input checked="" type="checkbox"/> DATE&TIME suffix (EX:IMG-CH00-20020810-053236-404.EYE) <input type="checkbox"/> SEQUENCE NUMBER suffix (EX:IMG-CH00-SND.EYE) <input type="checkbox"/> Manually assigned file name Image File Name: IMAGE.EYE Select the image resolution from prepared values: 360x240 |

mail is sent when the sensor1 detects events. (To use sensor input detection, a sensor should be connected to DX-VS1UE. If administrator clicks on periodic sending, e-mail is sent periodically every preset time. The interval may be modified.)

File name: Regarding the file name of images sent in MD or Sensor event, the file name is decided combining all options. Regarding the file name image sent in periodic sending event, administrator can decide how to name image files among three methods. Administrator names a file with data & time (DATETIME; E.g IMG-CH00-2001030-223031.eye) or sequential number (SEQNUM; E.g. IMG-CH00-SN1.eye). Also administrator names the file with fixed string (Manually assigned file-name). The image file has '.eye' file extension so that the file can be reproduced on Internet browser. With DATETIME or SEQNUM format, DX-VS1UE automatically put '.eye' file extension. When a file name is set manually, make sure to put '.eye' file extension(e.g. manual.eye). If not, the file cannot be reproduced on Internet browser or other program.

Note: If you've selected sequential number as the method of file naming , whenever the 'Apply' button is pressed, the sequential number is reset to initial value.

Image quality: Administrator can set image resolution delivered by e-mail. The resolution can be selected among 90x60, 180x121, 360x243, 720x243, and 720x486. The image of 90 by 60 pixels is the lowest resolution and the smallest size.

Check Points for E-mail Sending Problem

If you have problem in sending e-mail, check the followings;

- You have set DNS address properly in the "Network Configuration" page.
- You have set sender's e-mail address properly in the "Application Configuration" page.
- You have set relay mail server properly in the "Application Configuration" page.

(5) FTP directory configuration

Administrator assigns FTP server address, FTP user account, FTP user password, and FTP user path to receive files when an event occurs.

(6) FTP event configuration

Administrator can set transmission conditions, image resolution, and file name. The setting method of image resolution, filename, and transmission conditions of FTP is the same as that of e-mail.

Transmission Performance of E-mail and FTP

- DX-VS1UE can send e-mail once per five minutes at most in case administrator set DX-VS1UE to send e-mail periodically. If there were no restriction in sending e-mail, DX-VS1UE might cause a serious problem to the recipient's mail server. However, there is no limit in e-mail transmission triggered by motion detection event or sensor event.
- There is no limit in the FTP function. If you set 0 to the periodic sending menu, DX-VS1UE transmits files at best performance.
- Regarding the FTP function, if the interval between two events is within 2 seconds, the second event may be neglected. If the second event occurs within 3 seconds after image transmission, the second image file is not transmitted at times.
- Regarding the e-mail function, if the interval between two events is within 3 seconds, the second image file is not transmitted at times.

7) Pan/tilt/zoom Configuration

This page is used to select the serial port for connecting with a pan/tilt/zoom camera and to set pan/tilt/zoom functions such as 'Mode', 'Preset', etc.

(1) Select Serial Port

It is to select a serial port among Serial#2, and Serial#3 with which a Pan/tilt/zoom control receiver is connected to DX-VS1UE. Serial#2 are RS232-C interfaces and Serial#3 is RS-422/RS485 interface.

(2) Serial Port Base Address

This menu is used to identify the base addresses (camera ID or camera Number) between DX-VS1UE and a Pan/tilt/zoom camera. Administrator can connect pan/tilt/zoom camera through analogue pan/tilt/zoom controller.

When RS485 is chosen as an interface and two or more Pan/tilt/zoom cameras are connected, it is necessary to set Camera ID to each camera and to set it to the base address(Camera ID) to which DX-VS1UE corresponds.

(3) Advanced Pan/tilt/zoom Configuration

You can register preset points and set mode.

When you register preset, you should stop other users from controlling pan/tilt/zoom mechanism.

For controlling Pan/tilt/zoom mechanism, please refer to Chapter IV “Accessing DX-VS1UE Homepage & Monitoring Real-time Image.”



New Preset

You register a new preset point as follows. You can register up to 64 presets.

- Focus on a certain point to register as a preset point controlling Pan/tilt/zoom mechanism.
- Click a “New Preset” button, then a dialog box “New Preset” appears.
- Select a number from 1 to 64
- Set the preset name.
- Click “Add/Change” button
- In “Current Preset List” panel, you may view preset points that are registered currently. At the bottom of this window, you can check if the selected number is occupied or not.



New Group

You can make a new group by combining registered presets. You can make up to 6 groups. Each group can store up to 64 points. The procedure for making the group is as follows.

- Click “New Group” button, then a dialog box “New Group” appears.
- Select a number from 1 to 6.
- Set the group name.
- Set interval time. This value is the time interval between when a camera gets to one preset point and when the camera starts to move to the next preset point. You should set sufficient time so that you can monitor image.
- List proper preset point among registered ones in “Current Group Member.” According to the order that you listed in a group, a external camera travels.
- Click “Add/Change” button
- In “Current Group Member” panel, all registered pre-



set points appear. At the bottom of this window, you can check if the selected number is occupied or not.

Mode Configuration

There are three modes: “Normal Mode”, “Swing Mode” and “Group Mode.”

- In the normal mode, user can control pan/tilt/zoom mechanism of an external camera through the dvr/ptz control page.
- If the swing mode is selected, the connected pan/tilt/zoom camera swings between two preset points. Time duration of “Wait (some) seconds” signifies the same meaning that of group mode. Administrator sets two swing points among up to 64 preset points that are listed.
- If the group mode is selected, the dome camera travels by way of preset points set as a group according to the listed order. Administrator selects the group from up to 6 groups listed in the “Select Group”.



8) Serial Port Configuration

This page is used to select a communication protocol among listed ones.

(1) Serial Port Selection

Administrator selects a serial port to set. DX-VS1UE has three serial ports. Serial#1 and Serial#2 are RS232-C interface ports, and Serial#3 is a RS422/RS485 interface port.

| Serial Configuration | |
|--|-----------------|
| Parameter Name | Parameter Value |
| Select Serial Port | Serial#1 |
| Port Device Name | 1 RS232 |
| Select Attached Device | None |
| <input type="button" value="Apply"/> <input type="button" value="Cancel"/> <input type="button" value="Help"/> | |

(2) Select Attached Device

Administrator selects a communication protocol that an attached external device satisfies among listed protocols.

None
DX-TL800E

Manual Setting

If you can't find protocol for your external device in the list, you can define the protocol by selecting "manual setting" and setting values to control parameters and pan/tilt/zoom commands. For detailed information, refer to the "PTZ Command for Manual Script" explained at the next page.

※Although this machine is equipped with two or more communication protocols which control pan/tilt/zoom cameras of other companies, operation to all the cameras of other companies and Pan/tilt/zoom operation are not guaranteed. In addition, it has not answered the inquiry about combination with the camera etc. of other companies.

(3) Control Parameters

You can also set control parameters such as "Baud Rate", "Stop Bits", "Data Bits", and "Parity Check" according to the setting of the connected digital recorder or external camera.

PTZ Command for Manual Script

1. Escape Characters

| | |
|---|-----------------------|
| # | Special command |
| @ | Hexadecimal character |
| % | Decimal character |
| ^ | Character |
| , | Break character |
| ; | End of current packet |
| & | Special operation |

2. Special command (Followed by #)

| | |
|-------|--|
| A | Address assigned by pan/tilt/zoom configuration |
| X | Acceleration rate selected by user |
| Sx | Checksum calculation method |
| x = 0 | Sum of entire frame, size = 1byte |
| x = 1 | Sum of entire frame, size = 2byte |
| x = 2 | Sum of entire frame except first byte(sync), size = 1byte |
| x = 3 | Sum of entire frame except first byte(STX) and last byte(ETX), size = 1byte |
| x = 4 | Sum and one's complement of entire frame except first byte(STX) and last byte(ETX), size = 1byte |
| x = 5 | XOR sum of entire frame, size = 1byte |
| x = 6 | XOR sum of entire frame, size = 2byte |
| x = 7 | XOR sum of entire frame except first byte(sync), size = 1byte |
| x = 8 | XOR sum of entire frame except first byte(STX) and last byte(ETX), size = 1byte |
| x = 9 | XOR sum and one's complement of entire frame except first byte(STX) and last byte(ETX), size = 1byte |

3. Special Operation (Followed by &)

| | |
|----|---|
| Sx | Delay about $(([acceleration\ rate] + 1) * (100 * x))$ ms |
| x | 0 ~ 4 |

4. Exceptions

Normal character following Escape Sequence, must use break character for identifying the end of sequence

* Some protocols are not to be made command script with above method. It is because they use another method of checksum calculation.

9) Sensir Input Configuration

This page is used to set sensor input status. This is related with E-mail and FTP function and Alarm preset function.

(1) Device Type for Input Ports

Administrator defines active state of 4 digital input ports. If you connect normal open type device to input port, you should select “NO (Normal Open).” With normal close type device, you should select “NC (Normal Close).”

| Sensor Input Configuration | |
|--|---|
| Parameter Name | Parameter Value |
| Device Type for Input Port 1 | <input checked="" type="radio"/> NO(Normally Open) <input type="radio"/> NC(Normally Close) |
| Current Status for Input Port 1 | Not Active |
| Device Type for Input Port 2 | <input checked="" type="radio"/> NO(Normally Open) <input type="radio"/> NC(Normally Close) |
| Current Status for Input Port 2 | Not Active |
| Device Type for Input Port 3 | <input checked="" type="radio"/> NO(Normally Open) <input type="radio"/> NC(Normally Close) |
| Current Status for Input Port 3 | Not Active |
| Device Type for Input Port 4 | <input checked="" type="radio"/> NO(Normally Open) <input type="radio"/> NC(Normally Close) |
| Current Status for Input Port 4 | Not Active |
| <input type="button" value="Apply"/> <input type="button" value="Cancel"/> <input type="button" value="Help"/> | |

(2) Current State for Input Ports

DX-VS1UE shows current status of the 4 input ports used for connecting with a sensor device. In the status panel, active state or Non-active state message appears. “Non Active” state means that connected device didn’t detect any event when the ‘Apply’ button was clicked. Though this message is not updated until you click ‘Apply’ button again, DX-VS1UE keeps receiving status information from the connected device.

10) Alarm Configuration

This page is used to set conditions for image recording in event status, so that DX-VS1UE sends the images through e-mail or FTP.

(1) Motion Detection Threshold

Administrator sets threshold for motion detection function. Threshold ‘0’ is the most sensitive state and ‘900’ is the dullest state.

(2) Alarm Parameters for E-mail / FTP Application

Administrator defines the conditions for recording image to DX-VS1UE, if DX-VS1UE detects some event through motion detection function (MD Event) or external devices (SID1, SID2, SID3, and SID4). DX-VS1UE can record 2 frames for 2 seconds before the event and 2 frames for 2 seconds after the event as well as 1 frame at the moment of event. The maximum recording rate is 1 frame per second and the total frames are maximum 5. DX-VS1UE records the images and send them through e-mail or FTP ac-

| Alarm Configuration | | | |
|--|---------------------------|--|--|
| Parameter Name | Parameter Value | | |
| Motion Detection Threshold | [300] @ [900] | | |
| Alarm Parameters for Serial FTP Application | Motion Detection Event | Before: Save [0] image(s) per [1] second(s) After: Save [0] image(s) per [1] second(s) | |
| | Sensor Input Part 1 Event | Before: Save [0] image(s) per [1] second(s) After: Save [0] image(s) per [1] second(s) | |
| | Sensor Input Part 2 Event | Before: Save [0] image(s) per [1] second(s) After: Save [0] image(s) per [1] second(s) | |
| | Sensor Input Part 3 Event | Before: Save [0] image(s) per [1] second(s) After: Save [0] image(s) per [1] second(s) | |
| | Sensor Input Part 4 Event | Before: Save [0] image(s) per [1] second(s) After: Save [0] image(s) per [1] second(s) | |
| | Alarm Panel | Sensor Input Part 1 Event | <input checked="" type="radio"/> Disable <input type="radio"/> Enable Preset Number [] |
| | | Sensor Input Part 2 Event | <input checked="" type="radio"/> Disable <input type="radio"/> Enable Preset Number [] |
| | | Sensor Input Part 3 Event | <input checked="" type="radio"/> Disable <input type="radio"/> Enable Preset Number [] |
| Sensor Input Part 4 Event | | <input checked="" type="radio"/> Disable <input type="radio"/> Enable Preset Number [] | |
| <input type="button" value="Apply"/> <input type="button" value="Cancel"/> <input type="button" value="Help"/> | | | |

ording to preset conditions on the “Application Configuration” page and “Alarm Configuration” page. If event keeps arising, DX-VS1UE sends images without duplicating regardless of overlapped time setting. The resolution of the image is fixed as 360x243.

※Depending on the load condition of network or server, there is the possibility that fewer pictures are transmitted than usual.

(3) Alarm Preset

This is used to match any preset point to one of external sensor. If you enable this function and match a certain preset with an external sensor, the subject of the connected camera moves to the preset point.

11) Customizing

This page is used to customize TCP ports of data transmission and design of the login pages.

(1) Web Server TCP Port

Administrator assigns a web server TCP port for user access to DX-VS1UE and data transmission from DX-VS1UE. 80th port is assigned as the default value. Please note that it becomes impossible to access the homepage of DX-VS1UE in normal method if you change the web server TCP port.

(2) Video Server TCP Port

Administrator assigns a video server TCP port through which DX-VS1UE transmits images to users. 8080th port is assigned as the default value.

| Parameter Name | Parameter Value |
|-----------------------|-----------------------------|
| Web Server TCP Port | 80 |
| Video Server TCP Port | 8080 |
| Page Title | Welcome To Video Server Box |
| LODD Image Server URL | /images/logo.gif |
| LODD Image Link URL | |
| Background Color | #FFFFFF |
| Foreground Color | #000000 |

Apply Cancel Help

(3) Login Page Editing

The login pages are designed so that administrator can edit easily. Editable parts are as follows.

- **Main Title:** This is used to change the title written on each login page.
- **Logo Image Source URL:** To show a logo image, administrator set the path or the URL where the logo image is stored. The logo appears on each login page. Please make the logo image with a height of 192 pixels or less and a width of 256pixels or less.
- **Logo Image Link URL:** Administrator can link the logo with a certain web page.
- **Background Color and Foreground Color:** You can change the background color and foreground color of login pages. Administrator can set the color with RGB value.

When the changed settings are reflected?

You have to click the 'Apply' button at each server configuration page to reflect the changed settings on your DX-VS1UE.

(appendix 1)

Detailed Specifications of DX-VS1UE

1. Hardware

General

| | |
|------------------------------|--|
| Power Consumption | DC 12V, 1.0A AC 24V 50/60Hz, 0.5A |
| External Power | AC 100~250V 50/60Hz, 0.5A DC 12V, MAX: 1.5A |
| Operation temperature | 5°C~40°C |
| Operation humidity | max 80% |
| Dimension | 121(width) × 33(height) × 130(depth)mm |
| Weight | 350g |

| | |
|---------------------|-------------------------------|
| CPU | 32bit RISC Embedded Processor |
| Flash memory | 8M bytes |
| Main Memory | 16M bytes |
| OS | Embedded Linux |

2. Video and Compression

| | |
|-----------------------------|------------------------|
| Video signal system | NTSC/PAL |
| Video input | 1 input BNC connector |
| Video through output | 1 output BNC connector |

| | |
|---------------------------------|--|
| Image resolution | 720x486, 720x243, 360x243, 180x121, 90x60 |
| Image compression system | WAVELET |
| Image compression rate | 10:1 ~200:1 |
| Image transmission rate | max 30fps(NTSC) / 25fps(PAL) (resolution:360x243 or lower) |
| Decord rate | 2 ~ 30fps |

3. Network

| | |
|---------------------|---|
| Connector | 10 Based-T Ethernet (RJ-45) |
| Installation | Assign IP address using setup program |
| Management | Setup program and web server built in sever configuration page achieves configuration |
| Browser | Microsoft Internet Explorer 5.0 or later |

4. Misc functions and I/O

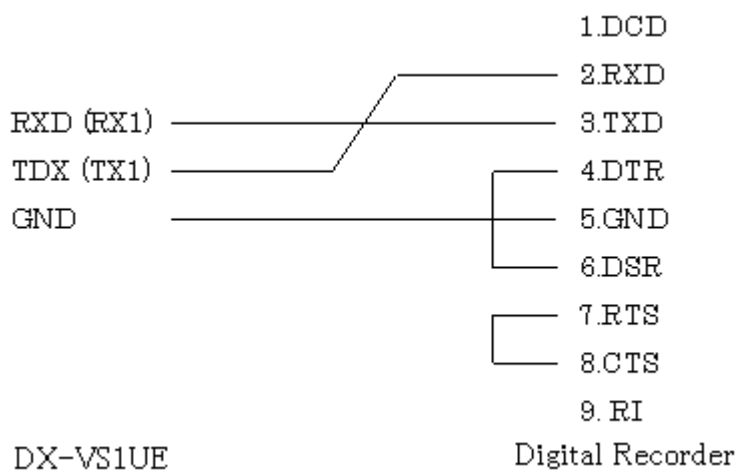
| | |
|---------------------------------|---|
| Pan/tilt/zoom Control | 1ch RS-232C, 1ch RS-422/RS-485 |
| Digital recorder Control | 1ch RS-232C |
| Sensor input Alarm | 4 inputs support, DC4.5~13.2V 1.6~20mA Motion detection Automatic e-mail transmission Automatic image transmission via FTP |
| Security | Password (user authentication-based) IP filtering(secure mode) Image encryption mode |
| Misc functions | Image quality control (10levels) Periodical image transmission (E-Mail, FTP) Gray mode |

Product specification and appearance may change without notice for improvement

(appendix 2)

Serial connection with digital recorder

When you connect this equipment with Mitsubishi digital recorder using serial connection, use the supplied serial cable. If you can't use the supplied serial cable due to installation location, connect in accordance with the setting illustrated below.



RS-232C terminal of digital recorder

| Pin number | Name | Signal | Pin number | Name | Signal |
|------------|------|---------------------|------------|------|-----------------|
| 1 | DCD | Data carrier detect | 6 | DSR | Data set ready |
| 2 | RXD | Received data | 7 | RTS | Request to send |
| 3 | TXD | Transmitted data | 8 | CTS | Clear to send |
| 4 | DTR | Data terminal ready | 9 | RI | Ring Indicator |
| 5 | GND | Signal ground | | | |

Frequently Asked Questions

1. The feature of DX-VS1UE

Q. What is the DX-VS1UE

A. Video server box DX-VS1UE offers the solution of the network type remote surveillance server having many features, such as an internet server, and a picture compression device, serial device control. Monitoring and operation of the image of a digital recorder or a Pan/tilt/zoom camera can be performed through DX-VS1UE.

When you use the supplied crossover cable (red) and you cannot access by the above connection, please use two straight cables and try on the connection via the hub.

Q. What kind of preparation are needed to monitor images

A. You need to prepare a BNC cable and a digital recorder or an external camera.

Q. What kind of image compression system has been adopted?

A. DX-VS1UE has adopted the WAVELET compression system as picture compression. The WAVELET compression system is the still picture-based compression algorithm like JPEG well known for picture compression. Moreover, unlike MPEG, the standard image compression system, DX-VS1UE deals with image as a collection of still pictures and compresses the still pictures at high speed, and transmits it.

Q. What is the difference between the WAVELET compression system and JPEG?

A. The difference between the WAVELET compression system and JPEG lies in the method of encoding. WAVELET algorithm uses DWT (distributed WAVELET conversion) to JPEG using DCT (distributed cosign conversion). WAVELET was adopted as the standard of digital image compression in JPEG2000 by virtue of the high reliability.

Q. Can two or more users monitor image in different resolution simultaneously using DX-VS1UE?

A. DX-VS1UE makes it possible for 100 users to monitor the image simultaneously at different resolution. Furthermore, DX-VS1UE supports gray mode for the users who connect through low speed network line. Even if a certain user is viewing monochrome image in standard resolution (360x243), another user can view color image in the highest resolution (720x486).

Q. What is the maximum transmission speed?

A. DX-VS1UE compresses and transmits at speed of 30 fps in case of 10BASE-T network. However, all users cannot monitor image at the speed. It's because transmission speed is greatly dependent on simultaneous connection of the performance of client PC, and network environment and two or more users.

Q. Up to how many users can connect with DX-VS1UE simultaneously?

A. DX-VS1UE supports simultaneous connection of up to 100 users. In this case, each user can receive one frame per about 10 seconds, respectively.

Q. Is there any pan/tilt/zoom functions in DX-VS1UE?

A. DX-VS1UE has Pan/tilt/zoom setting functions in its software. If a camera with pan/tilt/zoom functions is connected to DX-VS1UE, direction of camera lens can be changed and zoom in/out can be executed remotely by setting in the homepage of DX-VS1UE. A pan/tilt/zoom camera is connectable with RS232C, RS422, and RS485 communication interface.

A. Is there any limitation on the password setting?

Q. Yes. The password can be composed of only alphanumeric characters and the length of the password must be less than or equal to 9 characters.

2. Installation and operation of DX-VS1UE

Q. What kind of network line can be used?

A. Ethernet can be used.

Q. What is the maximum extension width of a network line?

A. UTP cable used for LAN can be extended up to 100 meters without bridging.

Q. Can telephone line be used for DX-VS1UE?

A. Although telephone line can be used for DX-VS1UE, it is necessary to install a modem and a router.

Q. Though my PC is directly connected with DX-VS1UE using the supplied crossover cable, DX-VS1UE cannot be accessed. How should I solve this problem?

A. Please try to connect with two straight cables and a hub. If it is possible to set transmission speed, please set the transmission speed to 10Mbps. If you cannot access to DX-VS1UE after that may be in the PC side (including a setting item and an interface) when it cannot access, even if you try the above, please consult with each maker.

Q. When the network consists of one global IP address and two or more private IP addresses, can DX-VS1UE be connected to a network with the private IP address?

A. DX-VS1UE is a Web server. Although a private IP address can be assigned to DX-VS1UE, DX-VS1UE must be specified as a local server. The router is usually connected to the network with a fixed IP address, and a local network with two or more private IP addresses is constituted. In this case, as for all the devices connected to the local network, a private IP address is assigned. However, all devices communicate with a remote device using a fixed IP address. A router changes a private IP address into a fixed IP address, and a local device enables it to access it at a remote device. This function is called NAT (Network Address Translation).

In case a router is set up, a local device can be specified as a local server out of all devices. And you have to input the IP address of DX-VS1UE into the column of a local server address. Otherwise, DX-VS1UE cannot be accessed from a remote network.

Q. When the network consists of only private IP addresses, can DX-VS1UE be connected to the network?

A. DX-VS1UE is connectable with LAN which consists of only private addresses, as long as a local user accesses DX-VS1UE. However, all networks may be downed when specification in which network apparatus, such as a hub, supports all devices appropriately is not fulfilled.

When many DX-VS1UE are especially connected to the network of narrow band width, this

state may happen.

Q. When a fire wall is in a network, can you install DX-VS1UE and can operate it?

A. In order for DX-VS1UE to transmit data and a picture, the default port number of 80th and 8080th needs to be vacant.

However, usually only the 80th port is vacant in the network with a fire wall because of security. In this case, a user can change a picture transmission port into the other port which can pass fire walls from 8080th.

A user can set up on Customizing Page of Server Configuration Page.

Q. How can a user monitor the image transmitted from DX-VS1UE?

A. A user can see the real-time image of DX-VS1UE using 5 or later versions of Internet Explorer. It is necessary to install the DX-VS1UE ActiveX control for Internet Explorer at this time. This ActiveX control is used on the page (Simple Viewer Page, DVR Configuration Page, Pan/tilt/zoom Control Page, etc.) where a user monitors an image.

When the ActiveX (DX-VS1UE Control) is already installed, it can delete and install.

Q. If the ActiveX is not installed properly, what should I do?

A. Depending on the kind of computer, the ActiveX Control (the DX-VS1UE control program) may not be installed appropriately. In this case, Any image cannot be seen or a message "No input" is displayed. In order to solve this problem, please remove the DX-VS1UE control program as follows, and re-install.

The DX-VS1UE control program is installed in C:\windows\Downloaded Program Files in case of Windows 98 or Windows Me. In case of Windows NT or Windows 2000, it is installed in C:\winnt\Downloaded Program Files.

Please put the mouse cursor on the DX-VS1UE control program, click the right button, and choose remove menu.

When you access DX-VS1UE once again, the DX-VS1UE control program will be installed.

Q. When the ActiveX causes an error at the time of execution, how can I solve the problem?

A1. In case a message box like "Mismatched Version" is displayed, please do the following.

The ActiveX in DX-VS1UE is re-installed.

A2. In case a message box like "DX-VS1UE client initializing failed" is displayed, please do the following.

The Winsock2 library is not installed. The Winsock2 library for Windows 95/98 can be downloaded from a public site. Please install Winsock2 in your system after download, and restart your browser.

Q. The image of DX-VS1UE is not displayed. What is the problem?

A. There is the possibility that BNC cable is not connected appropriately. If the cable is connected appropriately, connection of DX-VS1UE and an external Pan/tilt/zoom camera may be unstable. Please check the connection of the BNC cable, or whether the BNC cable

is available.

Q. What kind of digital recorder can be connected with DX-VS1UE?

A. There is a function with which you can control a digital recorder on-line through DX-VS1UE. DX-VS1UE is connected with a digital recorder via RS232-C. Mitsubishi DX-TL800E can be used as a digital recorder which you can operate through DX-VS1UE.

Q. There seems to be some problem when accessing DX-VS1UE. At one time I can access the DX-VS1UE, but at other time, I cannot access the DX-VS1UE. How can I solve the problem?

A. In many cases, this problem occurs in case you use cable line or xDSL line. You need to use a router for get DX-VS1UE connecting to ISP. If the DX-VS1UE doesn't use the line for a while, Some ISPs compulsorily disconnect the session between DX-VS1UE and them. It is because they would like to avoid the excessive load on their server and network capacity which would occur without the forcible disconnection. If DX-VS1UE is disconnected by ISP, there is no way users can access DX-VS1UE. You can use session keep alive function, which many kinds of routers equip, in order to get around such a situation. This function makes it possible for DX-VS1UE to automatically connect to your ISP again when disconnected.

Q. The ActiveX of DX-VS1UE cannot be downloaded automatically. What causes the problem?

A. The ActiveX control of Internet Explorer is designed so that it can be downloaded to user's computer automatically and installed in it. However, if the registry information is broken, it may be unable to be downloaded and installed to the computer. In order to solve this problem, the installation program of DX-VS1UE ActiveX was prepared. Please use the program.

1. Download the installation program.
2. Execute "DX-VS1Control installer.exe."

Q. The setup program included in CD-ROM attached to DX-VS1UE cannot be executed. What is the problem?

A. The setup program is a windows program based on MFC. If your OS doesn't have MFC42.dll inside or the MFC42.dll is not installed properly, the setup program doesn't work correctly. You have to install MFC42.DLL, if a message like "MFC42.DLL not found" is displayed.

Installation procedure

1. Download MFC42.CAB.
2. Expand the .cab in a folder temporarily.
3. Execute "mfc42.exe".

Q. Regarding the setup program, if one of DX-VS1UEs is chosen from the list box and the "Change IP Addr" button is clicked, the setup program returns a message like "No response".

A. In case the option "Obtain an IP address automatically" is being used by IP setup of the TCP/IP property(Start>Control Panel->Network(and Dial Up Config)), please change into "Use the following IP address" temporarily. And change the configuration of subnet into

the subnet as both your PC and DX-VS1UE is included in.

Q. Regarding the setup program, If one of DX-VS1UE is chosen from the list box and the Reboot button or Start Configuration button is clicked, the setup program returns a message like “No response.”

A. If the IP address of the DX-VS1UE you selected is not included in the subnet to which your PC belongs, the setup program returns a message like “No response”. Please set up the IP address of DX-VS1UE again by pressing “Change IP Addr” button so that the IP address of DX-VS1UE is included in the subnet to which your PC belongs.

Q. When changing the TCP port number of a Web server into 60000th from 80th, it became impossible to access the homepage of DX-VS1UE. What is necessary to do?

A. Usually, a 80th port is the port number for transmitting and receiving data. Since this number has been changed, it is impossible for DX-VS1UE and your browser to transmit and receive data to each other. Please input an IP address into your browser as below and connect with it.

http://***.***.***.***:60000/

“***.***.***.***” is the IP address of DX-VS1UE. If the homepage of DX-VS1UE is displayed now, please return the TCP port number of a Web server to 80th of origin immediately.

Q. I forgot the password of server configuration level. What is necessary to do?

A. Please consult the store where you purchased DX-VS1UE.

Q. Any operation of a digital recorder or an external camera cannot be performed.

A. Is the serial configuration set up appropriately? It is necessary to connect a digital recorder to RX1, TX1, and GND of the serial port#1 by the RS232C cable. Moreover, when connecting an external camera via RS232C, it is necessary to connect with RX2, TX2, and GND of the serial port#2. Furthermore, please check whether communication setting of baud rate, stop bits, data bits, parity check, etc of an external camera or a digital recorder corresponds with that of DX-VS1UE In the case of an external camera, please check whether the Pan/tilt/zoom configuration is also set up correctly.

Q.The “LOADING” message keeps appearing on the homepage of DX-VS1UE. Why does this occur?

A. This message may keep appearing when DX-VS1UE starts without input video signal. Please check the input video signal.